

Western Instruments

Unique Welding Gauge Multi-Weld



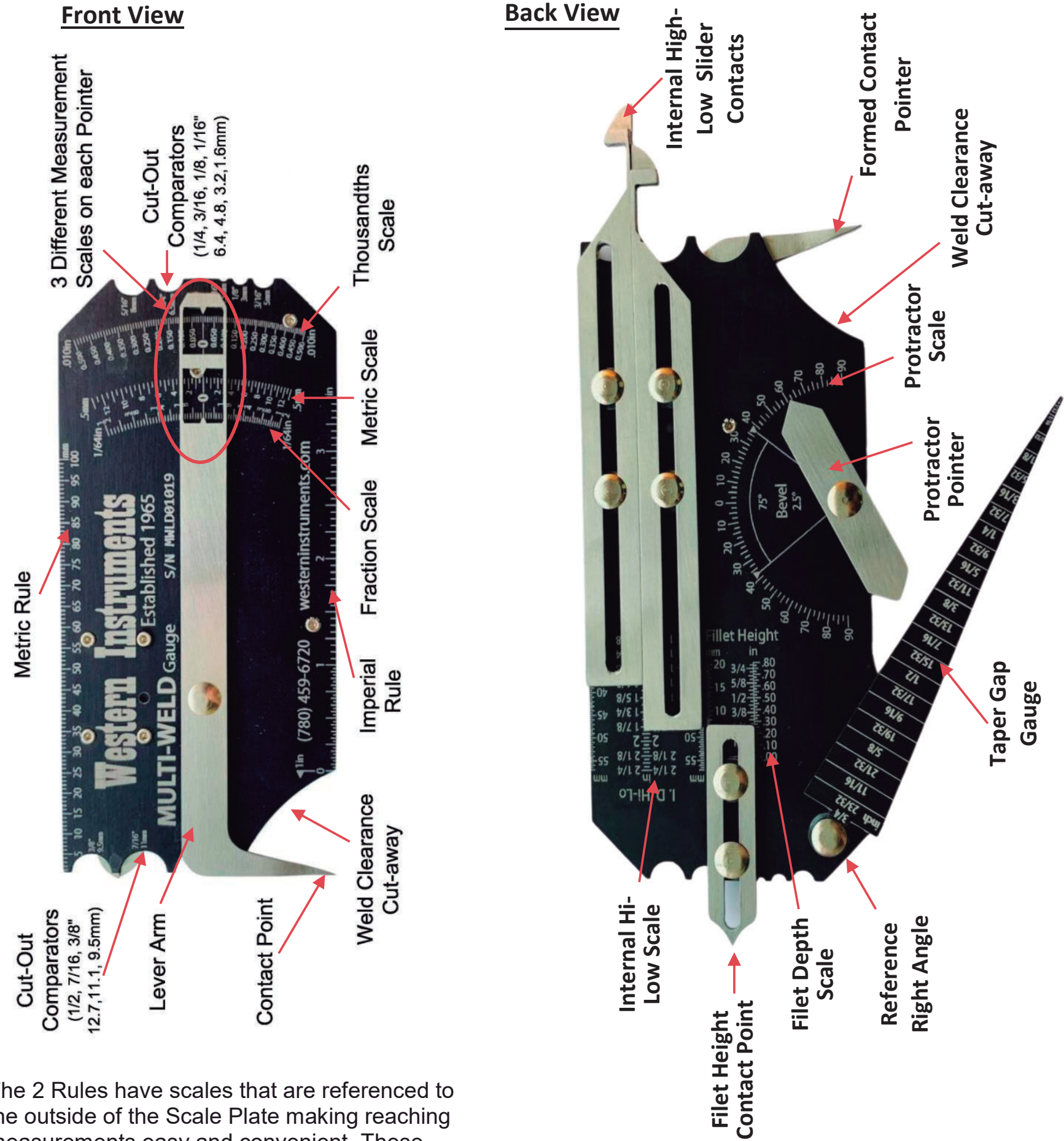
We are pleased to introduce our Multi-Weld Welding Gauge. We have provided this Welding Gauge with our 3 measurement scales; Thousandths and Fractions of an inch and Metric. As illustrated in this guide, the Multi-Weld provides easy to read measurements of the following welding and fit-up parameters;

- Internal Hi-Lo,
- Gap
- Fillet Height and Leg Length,
- Weld Height
- Undercut Depth
- Misalignment &
- Angle of Preparation.

The Multi-Weld Gauge is equipped with separate Imperial (1/32") and Metric (1.0mm) Rules on the top and bottom of the Front of the Scale Plate. The Multi-Weld Gauge is also fitted with 7 unique diameter comparators which are half circles in 1/16" to 1/2" in 1/16" increments (1.6mm to 12.7mm in 1.6mm increments) for convenient diameter estimates.

The Multi-Weld Gauge does away with Single Purpose Welding Gauges, by consolidating the functions of the 4 most popular gauges, with over 9 measurement functions. The contrast of the scales against the black background, make the Multi-Weld Gauge extremely easy to read on any of its measurement scales. The Multi-Weld is unique, a distinct improvement over existing gauges.

Weld and Fit-Up parameters are outlined in numerous industry specifications, such as; AWS, ASME, API, ANSI, ISO, DIN, CEN, and Military Specifications. Of particular importance for AWS Inspectors, the Multi-Weld Gauge will resolve and measure Undercut to +/- 0.010" (0.5mm), something no other Lever Type Welding Gauge can do.



The 2 Rules have scales that are referenced to the outside of the Scale Plate making reaching measurements easy and convenient. These scales have an overall length of 4 1/2" in imperial and 100mm on the Metric Rule.

Features: The Height/Depth Pointer has an improved window layout, making all 3 scales very easy to read. The Pointers scale can read depths of

Undercut of up to 0.250"/1/4" (6mm), & Leg Length and Weld Height of up to 0.5" to 1.00" (25mm).

The Lever Arm is equipped with Western's Patented Offset Correction to eliminate parallax due to the Scale Plate not being normal to the surface being measured.

The Gauge has a large Weld Clearance Cut-away, which enables it to reach across a Weld to measure misalignment, or up to a reinforcing pad to measure its thickness.

Angle of Preparation is measured using the protractor pointer, & can be used on either side of the Pointers Pivot. The Protractor is divided into 2.5° increments, with a common compound angle of 75° (37.5° x 2) indicated.



Filet Weld Height

Filet Leg Length

Weld Gaps



Weld Undercut



Weld Reinforcement



Weld Off-Set



Angle of Preparation

Filet Weld Throat



Comparators

Large

Small



The Front of the Multi-Weld Gauge is equipped with 7 unique Half Circle Comparators that are cut out from the side surfaces of the scale plate. These are used as comparators to accurately estimate the size of; Porosity, Fillet Welds, Rod Size, etc. These half circle comparators are from 1/16 to 1/2" (1.6 to 12.7mm) in 1/16" (1.6mm) increments. These half circle Comparators are grouped in a set of 3 larger, and 4 smaller half circles at each end of the Scale Plate. These half circle Comparators are grouped in a set of 3 larger, and 4 smaller half circles at each end of the Scale Plate. The Internal Hi-Lo feature uses our Parallel Catch Sliders. This provides the welder with extremely accurate Mismatch measurements from the inside of a Tube / Pipe or Plate fit-up. The Parallel Sliders are slightly extended and the Catches are inserted into the ID through the Weld Gap. The Scale Plate is rotated by 90°, so the Catches align to the transverse axis of the weld. The Welder gently pulls up on the Scale Plate, until one of the Slides bottom out or when he knows the slides are normal to the OD surface. The operator removes the Tri-Weld from the weld joint and reads the offset distance between the two Parallel Sliders. The Scales for this function are in Metric (0.5mm), and Fractions of an inch (1/32")

The **Gap Width** is measured against the 2 referenced thicknesses on the end of the Slider Catches, these are 1/16" (1.6mm) at the tip and step up to 1/8" (3.2mm) just in from the tip. The width of the 2 thickness on the Parallel Sliders is 1/16" so it will fit through most weld gaps.

The **Filet Height** Pointer is used to measure throat thickness. One or both of the 45° bevelled corners are put in contact with the work piece. The Height Pointer is extended until it contacts the thickest portion on the Throat of the Weld. The throat thickness is measured at the opposite end of the pointer, to a maximum of 0.80", 13/16", or 20mm in respective increments of 0.025", 1/32", or Lever 0.5mm.

Pointer Calibration

The Multi-Weld Gauge is assembled by a skilled technician, using appropriate tools and fixtures, to ensure the scales and Levers/Sliders are fully tested to ensure there linearity over the entire measuring range. During normal operation, the Contact Points (Height / Depth, and Fillet Height) can become worn or damaged, thus hindering the accuracy of the Multi-Weld Gauge.

If a Multi-Weld Gauge is found to have an inaccuracy, it can be tested by Western Instruments or an authorized calibration depot. However, with the right tools and a thickness standard, one can check and re-standardize the Multi-Weld Gauge. The tools required are a small ball peen hammer, a fine file, and a thickness Standard. The Thickness Standard, preferably Cold Rolled Steel, must be less than the full deflection of the Multi-Weld's Height/Depth range 3 to 25mm or 0.10" to 1.00".

After one determines the Contact Point (Height /Depth or Fillet Height) is too short or long, the contact point is easily adjusted. If these Contact Points are long (low measurements), lightly file the lower angled edge, on the Height / Depth Pointer, closest to the Scale Plate. On the Fillet Height Pointer, the point is lightly filed to make it a little more flat. After each draw of the fine file, the accuracy of the corresponding Points should be checked, on both the high and low end of the Height/Depth scale. On the Filet Height scale, the pointers height is simply verified. If the Multi-Weld Pointers are measuring high (short Contact Point), the bottom portion of the Contact Point should be placed flat on an anvil, that is the Gauge resting on its side. Give a light flat tap, with the broad face of your small Ball Peen Hammer, to the end of the Contact Point. Again, after each tap, the accuracy of the Gauge should be checked on the scales in the manner outlined above. While standardizing a Multi-Weld Gauge in this manner, patience and thought go a long way.

The Multi-Weld Gauge has passed many experienced Welder Inspector's critical Tests, you can put it in your back pocket, and nothing digs in!